

**COMMITTEE ON SCIENCE
SUBCOMMITTEE ON SPACE AND AERONAUTICS
U.S. HOUSE OF REPRESENTATIVES
HEARING CHARTER**

H.R. 3245 – The Commercial Space Act of 2003

Wednesday, November 5, 2003

10:30 a.m. to 12:30 p.m.

2318 Rayburn House Office Building

A. Purpose

On Wednesday, November 5, 2003, at 10:30 a.m., the House Subcommittee on Space and Aeronautics will hold a hearing to address the legal, regulatory, and public policy ramifications of H.R. 3245, the Commercial Space Act of 2003, for the emerging commercial human space flight industry. The entrepreneurs who comprise this industry hope in the near future to provide round trips into space for paying customers. H.R. 3245 proposes to regulate and license domestic commercial human space flight through the Associate Administrator for Commercial Space Transportation (AST) within the Federal Aviation Administration (FAA).¹ The bill also proposes to provide government indemnification to commercial human space flight providers for certain liabilities incurred from launch mishaps.

This hearing will examine the relative merits of regulating commercial human space flight through the AST, or the FAA's Aircraft Certification and Regulations Office (AVR),² or through another Government office and, by extension, the manner in which experimental launch vehicles should be regulated. The hearing will also address the merits of providing indemnification to commercial human space flight ventures. The government already offers indemnification to traditional commercial space transportation ventures, such as satellite launch operations.

B. Critical Questions

The following questions were submitted in advance to all of the witnesses:

1. Should the government regulate commercial human space flight? If so, what should the public policy objectives (e.g., encouraging development of the industry, protecting third parties, protecting passengers, etc.) of that regulation be and how should they be balanced?

¹ In 1985, the FAA created the Office of Commercial Space Transportation (OCST) to regulate and promote the commercial space transportation industry. In 1995, OCST's authority was transferred to the FAA's Associate Administrator for Commercial Space Transportation. This office is commonly known as the "AST."

² For historical reasons, the FAA's Aircraft Certification and Regulations Office is commonly known as the "AVR."

2. Should the government offer indemnification for commercial human space flight, and if so, against what sorts of liability? How should any indemnification relate to existing policies and international treaties?
3. What changes would you recommend to H.R. 3245? In particular, do you support commercial human space flight being regulated by the Office of Commercial Space Transportation at the Federal Aviation Administration? If not, where and in what manner would you propose to regulate commercial human space flight?

C. Witnesses

- 1) Henry Hertzfeld is a Senior Research Staff Scientist at the Space Policy Institute Center for International Science and Technology Policy at the George Washington University.
- 2) Raymond Duffy, Jr. is Senior Vice President at Willis InSpace Insurance Underwriters.
- 3) Pamela Meredith is of counsel at the law firm of Zuckert, Scoutt & Rasenberger, LLP where she practices aerospace and space law. Ms. Meredith also is an Adjunct Professor of satellite communications and space law at American University's Washington College of Law.
- 4) Gary Hudson is the Chief Executive Officer of HMX, an aerospace services company. Mr. Hudson is the former President and Chief Executive Officer of the Rotary Rocket Company.
- 5) Michael S. Kelly is a Technical Manager at Northrop-Grumman/Xon Tech, and founder of the Kelly Space and Technology Corporation. Mr. Kelly currently heads the Commercial Space Transportation Advisory Committee's (COMSTAC) reusable launch vehicle working group.

D. Background

The Existing Regulatory Regime for Commercial Space Transportation Launches

Any person or private entity wishing to conduct commercial space transportation activities (generally, satellite launches) in the United States must obtain FAA authorization to do so. Furthermore, U.S. citizens must obtain authorization from the FAA to operate launch or reentry sites anywhere in the world. The FAA derives this authority from the Commercial Space Launch Act of 1984 (CSLA) and has delegated that authority to the AST. The AST has the dual mandate of regulating and promoting the commercial space transportation industry in the United States.

When the CSLA was enacted, only expendable launch vehicles (ELVs), sounding rockets, and certain types of ballistic missiles were available for private sector use. These vehicles typically are used to lift satellites into orbit. Since enactment of the CSLA, commercial enterprises have pursued the development of reusable launch vehicles (RLVs). A reusable launch vehicle is one that is designed to return from Earth orbit or outer space to Earth substantially intact. Congress amended the CSLA in 1998 to add licensing authority for reentry vehicles, including RLVs. Proponents of the use of RLVs hope that they may ultimately provide trans-atmospheric high-speed flight around the globe for rapid international travel.

With developmental RLVs designed to fly human beings into outer space, a number of applicants have approached the AST desiring to enter the space launch licensing process. The “hybrid” design of certain of these vehicles and the fact that RLVs are meant to carry human passengers makes the question of how they should be regulated difficult. For example, some RLV concepts are considered “hybrids” because they combine aviation (for example, wings) and space technologies (for example, rocket propulsion). This hybrid quality muddies the regulatory lines of authority over RLVs between traditional space and aviation regulatory authorities. The fact that human beings will be passengers on the RLVs also creates regulatory confusion inasmuch as the established regulatory process for licensing commercial space launches currently does not contemplate human passengers, while aviation regulation has had authority to regulate passenger-carrying vehicles in the past.

Some in the industry believe that the AST should regulate RLVs because the vehicles are designed to reach space and this is the traditional domain of the AST. However, there have been complaints that the AST licensing process is too slow to allow the commercial human space flight industry to grow. Moreover, AST has little experience regulating aviation technologies and no experience regulating vehicles with passengers. As an alternative to regulation by AST, some in the industry believe that the AVR should take the lead in regulation. AVR has a relatively streamlined process in place for certifying experimental aircraft and experience regulating passenger-carrying vehicles. Still others in the industry believe that commercial human space flight should not be regulated whatsoever or they advocate the creation of a wholly new office within the federal government to regulate commercial human space flight ventures.

At present, it is not clear what type of regulatory regime would (or should) cover commercial human space flight operations. Specifically, it is not apparent whether a standard commercial space launch license issued by the AST must be issued, or whether an aircraft certification, such as an experimental airworthiness certification, should be issued by the AVR. It should be noted that the FAA recently issued regulations meant to clarify the FAA licensing requirements for hybrid RLVs based on the design of the vehicle and that these regulations mirror the definitions proposed in H.R. 3245. However, the FAA regulations do not (and are not meant to) cover human space flight. Regardless, there is an overall concern that uncertainty about the applicable regulatory regime may impede the ability of developers of systems for commercial human space flight to obtain financing from would-be investors.

Government Indemnification for Commercial Human Space Flight Operations

In 1988, Congress amended the CSLA to indemnify the commercial space launch industry against successful claims by third parties. Specifically, the United States currently agrees to pay third party claims against licensees in amounts up to \$1.5 billion above the amount of insurance that a licensee carries. The CSLA's definition of "third party" excludes all government employees, private employees, and contractors involved directly with the launch of a vehicle.

The CSLA requires that private launch companies purchase sufficient liability insurance to cover a minimum amount of damage. This amount is determined by the FAA on a case-by-case basis depending on its calculation of the "maximum probable loss" from claims by a third party.³ This amount is capped at \$500 million for coverage against suits by private entities.

Since the majority of commercial launch activity occurs at national launch ranges (for example, Cape Canaveral and Vandenburg Air Force Base), the CSLA also requires any insurance policy a company obtains to also protect the federal government, its agencies, personnel, contractors, and subcontractors.

The liability insurance section of the CSLA requires reciprocal waivers of claims between the licensee and its contractors, subcontractors, and customers. In effect, the licensee and any other organization assisting in the actual launch are preventing from seeking damages from one another.

Since its enactment, the CSLA's indemnification regime has been subject to an expiration date. The expiration date already has been extended by Congress several times. At present, FAA-licensed launch operators are ensured of indemnification under the statutorily prescribed procedures through December 31, 2004. H.R. 3245 extends indemnification through December 31, 2007.

International Law Governing Space Launches

International agreements make clear that the United States bears absolute liability for the international consequences of private American space launches. By setting insurance requirements based on maximum probable loss, as directed by the CSLA, the Government is essentially making a risk estimate that its potential liability under international agreements will be covered by the insurance purchased.

The international law governing the United States' outer space activities consists of four multinational treaties and "customary space law." Two of the treaties, the Outer Space Treaty of 1967 and the Liability Convention of 1972, expressly address issues of third party liability in the international context. Article VI of the Outer Space Treaty places

³ In the alternative to purchasing adequate insurance, private launch companies must demonstrate that they have adequate resources to cover all potential losses.

responsibility for all national outer space activities on respective government signatories, even when a launch is conducted by a private organization. The Liability Convention expands the basic international liability concepts set forth in the Outer Space Treaty. To date, there have been no claims under international law for third-party liability resulting from U.S.-licensed commercial launches.

The Regulatory and Indemnification Regime Proposed by H.R. 3245

H.R. 3245 seeks to amend the CSLA by placing authority for the regulation of human space flight activities under the AST. As stated in its findings, the bill means to “create a clear legal and regulatory regime for commercial space transportation, including an unambiguous delineation of regulatory roles and responsibilities.”

H.R. 3245 recognizes that with the advent of commercial human space flight there are two new factors with which to deal in the commercial space transportation regulatory and liability risk-sharing regimes: passengers and crew. The bill delineates qualifications that passengers must meet to be eligible for space flight, but does not contemplate qualifications for crew members. The bill also includes a provision requiring a reciprocal waiver of liability claims between licensees and passengers, but the bill is not clear as to treatment of the crew for liability purposes.

H.R. 3245 broadens the existing indemnification regime for commercial space transportation launches to include commercial human space flight launches and extends the indemnification regime by three years. In addition, the bill directs the Secretary of Transportation to arrange for the National Academy of Public Administration (NAPA) to conduct a study on the existing liability-risk sharing regime for commercial space transportation.

E. Attachment

Section-by-section summary of H.R. 3245, the Commercial Space Act of 2003